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# Least Cost Analysis

## *for the Proposed Airport at Akutan, Alaska*

ResourceEcon  
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A report completed for the City of Akutan

ResourceEcon is an economic research firm located in Anchorage, Alaska. The firm has provided economic analyses in the areas of natural resources and fisheries for over 25 years. The Principal of the firm, Jim Richardson, was an economist with the University of Alaska, Fairbanks and at the North Pacific Fishery Management Council prior to starting ResourceEcon.

# Least Cost Analysis for the Proposed Airport at Akutan, Alaska

by Jim Richardson, ResourceEcon

This report is intended to provide economic information to those interested in the proposed airport project for Akutan, Alaska. It is intended to answer two questions about the airport:

*Is this project needed to provide a real service to residents and businesses in the region?*

*Is this project an efficient use of resources of the United States, and will it provide broad benefits on both a State and National level?*

## **1. Introduction**

Akutan is a world away from Washington D.C. It is 4070 miles distant, a small community on a small island on the Aleutian Chain. Akutan is distant even to people in Anchorage, the main population center of Alaska. Akutan is 781 miles to the west of Anchorage and 33 miles east-northeast of Unalaska.

The City of Akutan has worked for many years to get better air access to their community. The problems the community faces as a result of the status quo is well known. The State of Alaska Department of Transportation and Public Facilities (ADOT & PF) and the Federal Aviation Administration (FAA) has worked with the City of Akutan and the Aleutians East Borough to develop a plan for an airport at Akutan. In December 2007, HDR, Alaska Inc., contractor to the FAA, completed a Final Environmental Assessment (EA) for the Akutan Airport <sup>1</sup>. The preferred alternative identified in the EA is an airport located at Akun, a small island just outside Akutan Bay.



A great deal of analyses has been completed to demonstrate that the status quo is untenable for the City of Akutan. There are severe capacity limitations imposed by the constraint of having to land in Akutan Bay in front of the community in a seaplane and taxi ashore. The freight limitations of the

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<sup>1</sup> Akutan Airport, Final Environmental Assessment. Prepared for the Federal Aviation Administration on behalf of the State of Alaska, Department of Transportation and Public Facilities by HDR Alaska, Inc., December 2007.



air service into and out of Akutan cause severe hardship for passengers. Luggage is frequently left behind because there is no room, and can be delayed for weeks catching up to the passengers<sup>2</sup>. In addition, the flying and landing conditions required to operate a seaplane in very difficult weather result in very frequent disruptions to scheduled operations. An overriding constraint to the status quo is the age of the vintage plane that PenAir uses to provide service to Akutan. These planes were built during World War II, and the remaining planes have been in service for over 65 years. Grumman Goose parts are almost impossible to procure, and the plane will pass out of commercial service in the very near future. PenAir, and other potential air contractors have no other option for air service to Akutan. Therefore, Akutan is likely to lose air service within the next three to five years, a conclusion substantiated in the Akutan Airport Environmental Assessment referenced above.

When air service is not possible, the only means in and out of Akutan is by vessel. When weather conditions prohibit flying, the waters around Akutan are frequently inhospitable even to large fishing vessels that operate in the Bering Sea. Unimak Pass and other waters between Akutan and Unalaska are well known for their challenging weather to all marine traffic.

The number of passengers traveling to Akutan via air each year is shown in Table 1 for the most recent five years – 2004 to 2008.

**Table 1: Air Passenger Travel Numbers – 2004 to 2008**

Year	Number of PenAir Passengers	
	Dutch Harbor to Akutan	Akutan to Dutch Harbor
2004	2,228	2,144
2005	1,896	1,903
2006	2,031	1,710
2007	2,276	1,739
2008	1,450	1,355

Source: PenAir, passenger data, January 2009.

These figures only include those passengers that were successful in obtaining air service between Akutan and Unalaska. According to an interview with a representative of PenAir<sup>3</sup> about 60 percent of the scheduled flights are delayed or cancelled due to poor weather or maintenance issues with the Grumman Goose.

Looking at the data in Table 1, one would conclude that there are around three to four thousand trips per year between Akutan and Unalaska via PenAir. PenAir estimates that the actual number is 5,000 to 6,000 trips annually when delayed or cancelled trips are added. The differences in the numbers of trips to be accounted for are those passengers that resort to travel between the communities by fishing vessel after having difficulty obtaining air service (approximately 1,000 to 3,000 annually). Since the population of Akutan has been relatively stable, and the operations of

<sup>2</sup> Personal communication, Dave Abbasian, Trident Seafoods Akutan Plant manager, March 6, 2009.

<sup>3</sup> Personal communication, Danny Seybert, PenAir, March 12, 2009.



the Trident Seafoods plant has also been stable during the period shown in Table 1, it is most likely that the decline in passengers reflects passengers that have had to resort to vessel travel between Akutan and Unalaska rather than a decrease in demand for air services (*source – interviews with Pen Air and Trident Seafoods*).

Section 2 of this report describes the community of Akutan from a national perspective. Section 3 provides a description of the transportation alternatives for the community, and Section 4 provides a summary least cost analysis of the two alternatives. Section 5 addresses a number of economic and other factors that would differ in the respective benefits between the two alternatives. Not all of the factors in this latter category can be quantified, but information is presented, as available. Section 6 provides an overall summary of the comparison of the two transportation alternatives.

## 2. Akutan from a National Perspective

Akutan is typical of many communities in remote Alaska, having two complementary and very different qualities. The main face of Akutan is a traditional Aleut community. When the Russians first explored the Aleutians in the early 1740's they discovered Aleut communities like Akutan. Akutan has probably existed in one form or another for thousands of years. The oldest known settlement in the Aleutians is relatively close to Akutan at Anangula. The archeological sites at Anangula are what is left of a settlement of people thought to have migrated here across the land bridge from Asia 8,400 years ago.<sup>4</sup>



Is Akutan important or valuable to the U.S.? Past research indicates the answer is yes. During the studies associated with the Exxon Valdez oil spill, one of the findings was that residents of the United States valued remote places in Alaska, even if they never had an intention of visiting the area. Economists call this *existence values*. Even if they never visit it, the population of the country as a whole receives value from the existence and continuation of places like Akutan. They provide an interest and diversity that is part of the ongoing cultural history of our country.

Akutan residents practice non-commercial traditional and customary harvests of renewable resources for food, clothing, fuel, transportation, construction, arts, crafts, sharing and customary trade. Akutan is a typical remote Alaska community in the sense that subsistence activities are

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<sup>4</sup> [http://en.wikipedia.org/wiki/Anangula\\_Archeological\\_District](http://en.wikipedia.org/wiki/Anangula_Archeological_District)



prevalent and significant. Important fish and wildlife species include halibut, sockeye salmon, Steller sea lions, Pacific cod, feral cattle, coho salmon, pink salmon, harbor seals and duck.

The other Akutan is a modern, thriving seafood processing business. Trident Seafoods Inc. operates a large groundfish processing plant just down the beach from the City of Akutan. Fishing vessels land Pacific cod, pollock, halibut, crab and other species that are processed, frozen and shipped throughout the United States, as well as exported to countries overseas. According to a company representative, Trident Seafoods' Akutan plant produces between 125,000,000 and 200,000,000 pounds of finished seafood products annually, depending upon harvest levels in the Bering Sea and Gulf of Alaska. Akutan ranks #2 in the nation in volume of seafood landed in most years, ranking just behind the leading port of Unalaska. Trident Seafood's fish products from Akutan are supplied to customers such as COSTCO, McDonalds, Burger King, Wendy's, Long John Silvers, Red Lobster and many other outlets throughout the United States. If you live in the United States and eat fish, you have probably consumed products from Akutan.

Trident's Akutan plant is one of the largest and most technologically advanced seafood processing plants in the World. In most years, it is the #2 port in the United States in volume of seafood landed<sup>5</sup>. The Trident Seafoods plant provides hundreds of year-round jobs to workers from many areas of the country that travel to work there. During peak periods, up to 1,100 workers process seafood at the plant. Due to the sequential nature of the Bering Sea fisheries, there are several crew changes at the Trident Seafoods plant over the course of a year. The large fluctuations of workers coming into and out of Akutan place high demands on the air service, which creates bottlenecks and costly delays for both the workers and the company.



Aerial view of the City of Akutan.

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<sup>5</sup> Production information from, and with the permission of, Trident Seafoods Corporation.



### 3. Descriptions of the alternatives

Alternative 1 is the proposed sea-air link from the City of Akutan to the City of Unalaska, where passengers can access scheduled airline service to other destinations in Alaska and out of state. The sea link will be provided by a hovercraft transportation service between the Akutan Small Boat Harbor, the City of Akutan, Trident Seafoods, and the proposed airport on Akun Island. The sea link hovercraft service will be owned and operated by the Aleutians East Borough, drawing on their experience and operational methods gained by the King Cove-Cold Bay hovercraft project. The air link from the airport on Akun Island to the City of Akutan and Dutch Harbor will provide scheduled air service from PenAir, and other commercial air service providers that wish to expand their operations into the region.

Alternative 2 is a dedicated ferry that would operate between Unalaska and Akutan. It is based on the capacity and cost structure of the M.V. Tustumena, currently operated by the State of Alaska, Alaska Marine Highways. The ferry would operate daily, carrying passengers and freight the 33 miles between the two communities.

The dedicated ferry includes regular maintenance cycles for the ferry, and the cost of scheduling a replacement ferry during these periods. The alternative assumes homeporting in Unalaska. It is possible that there could be some extraordinary ferry labor costs for this alternative, such as provision for worker housing as a requirement for securing and maintaining staff. These potential costs were not included in the ferry cost totals.

The projected cost of the Akutan airport is \$77,400,000 (ADOT&PF 2009 estimate). This total cost figure includes, in addition to the cost of the airport, other costs for this alternative such as the cost of the hovercraft and other infrastructure needed to support its operation. The Aleutians East Borough has up-to-date experience in costs for operating a hovercraft from operating their King Cove to Cold Bay hovercraft shuttle and this expertise was incorporated into the ADOT&PF cost estimate.

The second transportation alternative evaluated for this report is a dedicated ferry that would be dedicated to the Unalaska to Akutan service and provide once daily service. The ferry would be homeported in Dutch Harbor and would travel back and forth the 33-mile distance between Unalaska and Dutch Harbor. It should be noted that the ferry must be an oceangoing vessel in accordance with U.S. Coast Guard requirements. This means a higher capital cost than a ferry designed for operation in less rigorous weather and oceanographic conditions. The capital cost to purchase a ferry under this alternative is \$130,000,000 (State of Alaska, Alaska Marine Highways estimate).

Detailed information on the respective costs for the two alternatives and for the assumptions that go into the least cost model is presented in Section 4 of this report.

#### 4. The least cost analysis of the two transportation alternatives

This section presents the results of a least cost analysis of two alternatives to improve the transportation for the City of Akutan. A least cost approach is a method commonly used by federal agencies such as the U.S. Corps of Engineers to choose between two alternatives, or among several alternatives having similar benefits, but different costs. To apply this approach, the net present value for future costs is analyzed and compared, using a discount rate to account for future costs in present dollars. The present value calculation requires the application of a discount rate. The FAA utilizes a discount rate of 7 percent, so this discount rate was used in the analysis.

The application of present value allows the comparison of current and future costs, by accounting for the diminished value of money in the future, compared with its present value now. The discount rate applied in the analysis is the factor to make future dollars equivalent to current dollars. The present value formula is:

$$NPV = \frac{R1}{(1+r)} + \frac{R2}{(1+r)^2} + \dots + \frac{Rn}{(1+r)^n}$$

*where NPV equals the net present value of the stream of current and future costs,  
r<sup>1</sup>, r<sup>2</sup>... r<sup>n</sup> are the future costs in years 1, 2... to year n, and  
R is the discount rate applied*

It is important to note that while the analysis assumes that the benefits of both alternatives are similar, Alternative 1 will provide flights between Unalaska and Akutan up to several times per day if the need warrants the number of flights. This compares with Alternative 2 – where there will be once daily service via ferry service between the two communities. As will be discussed later in the report, delays in transportation are costly to residents of Akutan, fishermen headed out fishing and processing workers going back and forth to work at the seafood processing plant in Akutan. Alternative 1 will provide substantial benefits in convenience and efficiency, due to the increased schedule of service. However, to keep the least cost approach as straightforward as possible, the economic benefits associated with this convenience and efficiency were not estimated. To the extent that these convenience and efficiency benefits exist for Alternative 1, it is recognized that the results understate its overall benefits to Akutan travelers.

This section summarizes the results of the least cost analysis for the annual costs of the two alternatives described above over the 20-year time horizon for the analysis. Table 2 shows the results of the least cost analysis. The specific approach was developed in consultation with the FAA Anchorage office staff. This analysis differs from the typical approach of the FAA to benefit/cost approach. As noted above, both Alternative 1 and Alternative 2 would result in a great improvement to the status quo for transportation of passengers and freight into and out of Akutan, compared with the status quo. The analysis of least cost shows the most efficient choice to achieve these relatively similar benefits. The least cost analysis compares the 20-year costs in present dollars for Alternative 1 - the proposed airport for Akutan versus Alternative 2, the dedicated regional ferry system.



The present value for Alternate 1 – the Akutan airport costs over 20 years total \$89,802,015. The present value for Alternative 2 – the dedicated ferry system between Akutan and Unalaska costs over 20 years total \$225,010,904. As discussed above, this is not a benefit/cost analysis, but the least cost alternative is clear from the result. Alternative 1 – the Akutan airport is less than 40 percent of the 20-year present value of Alternative 2 – the Unalaska to Akutan ferry.

**Table 2: Summary of Least Cost Results**

<b>Net Present Value (NPV) Summary for Alternative 1 - Akutan Airport and Alternative 2 - Dedicated Ferry</b>			
<b>Akutan Airport Alternative</b>		<b>Ferry alternative</b>	
Akun airport Net Present Value	\$77,400,000*	Ferry cost Net Present Value	\$130,000,000
20-year residual value Net Present Value	\$6,667,210	20-year residual value Net Present Value	\$21,561,836
Net Present Value Difference	\$70,732,790	Net Present Value Difference	\$108,438,164
Operations Net Present Value	\$6,356,409	Operations Net Present Value	\$116,572,740
Hovercraft Operations Net Present Value	\$12,712,817		
<b>Total NPV airport alternative</b>	<b>\$89,802,015</b>	<b>Total NPV ferry alternative</b>	<b>\$225,010,904</b>

*Source: calculated by ResourEcon, April 2009*

\* The following components are included in total Alternative cost of \$77,400,000: purchase of the hovercraft, Akutan landing pad, Akutan hovercraft shelter, Akun Island landing pad, and Akutan boat harbor improvements.

### **Detail for assumptions of the cost model:**

Assumptions made, and the sources of data utilized in the net present value least cost model, are critical to understanding the overall comparison of alternatives. These assumptions are detailed below.

#### Assumptions common to both transportation alternatives:

- The cost comparison model was computed using a Microsoft Excel spreadsheet model, using present value over the projected 20-year time horizon (*source – FAA Anchorage office staff*).
- The FAA discount rate of 7 percent is utilized for the present value calculations (*source – FAA Anchorage office staff*).
- The residual value for both alternatives after 20 years was evaluated and included in the cost model (*source – calculated by ResourEcon, based on cost and time period at 7 percent discount rate*).

### Ferry alternative assumptions:

- The capital cost of the dedicated ferry was determined in consultation with the staff at the State of Alaska, Marine Highways. Their estimated replacement for a Tustumena-sized ferry was \$100 to \$200 million. This yields a midpoint cost of \$150 million, but this is an overly wide range. Additional interviews were conducted with Alaska Marine Highways staff to gain additional information and refine the ferry cost estimate. A recent estimate for replacement for the MV Tustumena, completed in the fall of 2008, calculated a cost of between \$120 and \$121 million. This figure did not include contractor costs or project management costs (estimated at 8 percent by the Alaska Marine Highways). Therefore, the current replacement cost for the Tustumena totals \$130,000,000, which is the figure used for this analysis (*Source – State of Alaska, Marine Highways staff in Juneau and Ketchikan*).

In considering the replacement value of the Tustumena, it is important to note that it may be difficult to replace the vehicle elevator mechanism used in the current vessel. This type of elevator may no longer be manufactured, and some sort of replacement would have to be designed into a new vessel, potentially increasing its cost.

If a new version of the vehicle elevator would not be possible for a replacement Tustumena ferry, it would be necessary to modify or rebuild the docks currently used in Unalaska and Akutan to dock the ferry. The Alaska Marine Highways estimated the costs for these new facilities, if necessary, in the range of \$7 million to \$15 million each. Because of the uncertainty in the design and application of the vessel elevators, these potential costs were not included in the least cost calculations for Alternative 2 (*Source – State of Alaska, Marine Highways staff in Juneau and Ketchikan*).

- The economic life of the dedicated ferry was set to be 64 years, according to current practice by the State of Alaska, Alaska Marine Highways. A straight-line depreciation was calculated, and the present residual value of the ferry at the end of 20 years was calculated to be \$83,437,500. This amount in present value is equal to \$21,561,836 (*source – assumptions from the State of Alaska Marine Highways staff; calculations by ResourceEcon*).
- The net present value of the ferry, subtracting the residual value at the end of 20 years from the initial cost, was calculated to be \$108,438,164 (*source – calculated by ResourceEcon*).
- The projected operations and maintenance costs of the proposed ferry were obtained from the State of Alaska, Alaska Marine Highways, based on their actual costs for similar ferries. In 2008, the State of Alaska paid \$9,612,000 in operating costs for the Tustumena, for an operating period of 45.3 weeks. This figure was extrapolated to 52 weeks (year-round operation) resulting in an annual operations cost of \$11,033,642 (*source – State of Alaska, Marine Highways staff in Juneau*).



- The above operations costs include ferry labor costs for the Tustumena. It is likely that the dedicated Unalaska to Akutan ferry would face higher labor costs since it will be homeported in Unalaska. For many types of employment in Unalaska, it is typical for workers to receive housing as part of their overall compensation. No adjustment was made in the operations cost for the ferry because the actual situation will not be known until employees are actually hired (*source – State of Alaska, Marine Highways staff in Juneau*).
- The present value of the \$11,033,642 annual operating costs over the projected 20-year analysis period totals \$116,572,540, using the FAA discount rate of 7 percent.
- The total present value for the ferry alternative over the 20-year analysis period is \$225,101,904 (*source – calculated by ResourceEcon*).

#### Akutan airport cost assumptions:

- The construction costs for the Akutan airport on Akun Island are estimated to be \$77,400,000 (*source – State of Alaska, ADOT&PF estimate*). As noted in Table 1, this figure includes the capital cost of procuring the hovercraft and constructing a number of support facilities for its operation in Akutan and Akun Island.
- The 20-year residual value of the improvements at Akun Island, including the support buildings are straight line depreciated over 30 years. While the least cost model projects ahead 20 years, the standard building depreciation schedule employed by the Aleutians East Borough depreciates buildings over 30 years. Therefore, the model calculates the residual value of the airport facilities as of year 20, and then calculates the present value of that amount. The residual value for the Akun airport improvements at the end of the 20-year analysis period is \$25,923,000 (*source – Aleutians East Borough previous manager Bob Juettner on standard depreciation practices for the borough, calculations by ResourceEcon*).
- The \$25,923,000 value of the residual improvements at year 20, is translated to present value using the FAA discount rate of 7 percent. This results in a present value of \$6,667,210 (*source – calculated by ResourceEcon*).
- Analysts at ADOT&PF have estimated the annual operations costs for the Akun airport to range between \$500,000 and \$700,000. This is substantially higher than for other similarly sized airports in the region. For example, the Sand Point airport annual operations costs are \$200,000. The high costs for the proposed Akun airport come from its remote nature – the staff will have to live on site, and the high cost to generate electricity to operate the facility. The midpoint operating cost, \$600,000 annually was used in the calculation. Over the 20-year analysis period, the present value of the \$600,000 annual operations cost totals \$6,356,409 (*source – State of Alaska, ADOT & PF, Anchorage staff*).

- The cost to operate the hovercraft was determined through contacts with the Aleutians East Borough, based on their actual costs from operation of the King Cove to Cold Bay hovercraft shuttle. The distance costs are likely to be similar, the distances are similar and the operating schedule is also likely to be the same (*source - Aleutians East Borough staff on actual costs of hovercraft operations*).

## 5. Other cost differences between the two alternatives

This section of the report will provide quantitative and qualitative estimates for many of the benefits that would occur compared with (a) the status quo, and (b) the differences between the two alternatives.

Essential air service (EAS) – The essential air service program was put into effect following the Airline Deregulation Act, passed in 1978. It provides a subsidy to certified air carriers to provide commuter airline service to communities across the country. Air service to Akutan has an EAS cost of \$513,803 annually. This high cost is largely due to the extremely high costs of operation of the PenAir Grumman Goose.

Alternative 1 would likely result in a greatly reduced cost to the nation from the EAS costs to provide air service to Akutan. With the Akutan airport in place, carriers would have greatly reduced costs and increased flexibility in selecting aircraft to provide service, compared with the status quo. Alternative 2 would likely results in little change to the EAS subsidy, since it would not affect the costs of providing air service to Akutan. Under Alternative 2, it is likely that the EAS costs would continue to increase as the cost for providing air service to Akutan and other remote communities in the region increases. Since the actual savings for the Akutan EAS will not be known until the airport is completed, the 20-year benefit to the nation was not quantified.

MedEvac cases for emergency treatment – There have been 25 medical evacuation (MedEvac) cases over the past five years from Akutan, an average of five cases per year<sup>6</sup>. The Coast Guard expenditure for each MedEvac is \$40,000 to \$50,000 each so the annual cost to the U.S. Coast Guard averages \$200,000 to \$250,000. The cost includes not only the helicopter used to pick up the MedEvac case, but also the accompanying costs for a fixed wing escort for the helicopter.

The average waiting time from the first call to evacuating time is 4 to 12 hours. Since urgency is the main factor for a MedEvac case, Alternative 2 is not likely to result in a substantial cost decrease. Alternative 1 would allow quick evacuation to Unalaska where medical evacuation planes are on standby 24 hours, resulting in greatly diminished costs to the Coast Guard, but as importantly, greater speed in obtaining medical treatment for those in need.

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<sup>6</sup> City of Akutan, medical clinic data.



Waiting/standby costs for travelers to Akutan – Under the status quo, uncertainties in air service and scheduling result in typical delay times passing through Unalaska to other destinations of one to five days. Based upon PenAir's estimate of the number of passengers not able to obtain air service between Unalaska and Akutan annually, approximately 2,000 to 3,000 are delayed per year. A typical daily cost for waiting in Unalaska is \$120 per night for accommodation and \$40 per day for meals. Specific data to quantify this cost are not available, but based on the components above, the annual cost of the delayed/cancelled air service between Unalaska and Akutan would be in the range of \$320 thousand to \$2.4 million. Delays associated with missed air connections beyond Unalaska certainly occur with regularity, but they would be extremely difficult to quantify and were not addressed in this analysis.

The costs for waiting/standby would be reduced for both Alternative 1 and Alternative 2. However, due to the greater number of trips and flexibility in meeting continuing airline connections, Alternative 1 would be a superior choice.

Competition and travel costs - Under the status quo, Akutan has inordinately high costs of air transportation to the community. There is only one company that has an appropriate seaplane to provide service to Akutan from Unalaska. Under Alternative 1, there would likely be other companies interested in providing regional air service competing for business, resulting in lower costs to passengers. Alternative 1 would allow direct charter service from Seattle, potentially resulting in reduced costs and a quicker travel times. This could be a large benefit during peak air travel times when Trident Seafoods is changing processing workers at its Akutan plant.

Alternative 2 would not result in reduced air service prices or offer flexibility in charter services. To the contrary, the ferry service would reduce demand for air service, and would probably cause air service providers to increase fares or even cease operation.

Regional airline travel safety - When completed, the Akun airport could have better landing conditions than the airport at Dutch Harbor. Since the airport has not yet been constructed, the Federal Aviation Administration has not yet calculated landing minimums for the runway and approach. However, the general nature of the topography is known. The proposed location of the Akun runway is such that the landing approach will be over water and would have very good potential for an instrument approach procedure that would allow reliable aeronautical access during inclement weather conditions. The mountains are farther away and much less prominent than at the Unalaska Airport. Thus, planes could be able to land at the Akutan airport when conditions were not good enough to make a landing at Unalaska. These characteristics could allow Akutan to serve as an alternative airport when weather conditions are not favorable in Dutch Harbor. Achieving the most favorable landing thresholds at Akutan will require additional equipment that is not included within the total cost for Alternative 1. These types of improvements are typically funded by State and Federal agencies, once a new airport is in operation.

Leveraging federal expenditures on other projects - The Corps of Engineers has spent the past ten years evaluating and designing a new boat harbor at the head of Akutan Bay to provide needed

moorage for vessels fishing in the Bering Sea and the Gulf of Alaska. The hovercraft sea-link component of Alternative 1 may provide some additional benefits to the residents of Akutan and workers at Trident Seafoods. Currently, the harbor at the end of Akutan Bay is not linked to the community via road, or designated water-taxi system. The operation of the hovercraft service between its proposed moorage area at the head of the Akutan Bay, the City of Akutan and the airport at Akun Island will facilitate and improve passenger transportation to and from the harbor. The status quo and Alternative 2 would not provide this benefit.

Eliminating market constraints – Trident Seafoods is one of the largest and most successful seafood processing and marketing companies in the nation. However, the lack of air service to Akutan constrains Trident's ability to take advantage of markets for fresh fish from their Akutan plant. Plants in Unalaska have been able to successfully market fresh crab, Pacific cod milt and other products directly to Asian markets. Alternative 1, by providing a reliable air link, would allow capture of markets for high valued products that are not currently being utilized. Alternative 2 would not enhance the potential for increased shipments of fresh seafood due to the travel time required<sup>7</sup>. Shipment of fresh seafood requires quick deliveries and reliable air linkages with scheduled freight to be feasible.

Emergency marine response – There have been a number of high profile instances in recent years where international freighters have experienced difficulty in the area of Unimak Pass. In the event of similar future similar occurrences, the ability to stage response activities out of the Akutan airport through Alternative 1 would add to the overall emergency response capacity of the region.

## 6. Summary of Results

*Based on the least cost model calculations presented in Section 4 of the report, Alternative 1 (the Akutan airport based on Akun Island) clearly had the least present value cost, compared with Alternative 2 (the dedicated Tustumena-style ferry with daily service between Akutan and Unalaska).*

*The results of the present value analysis for all costs over 20 years of operation are:*

*NPV – Alternative 1     \$89,802,015*

*NPV – Alternative 2   \$225, 010,904*

*As discussed in Section 4, the capital costs for the ferry, estimated at \$130 million, could increase significantly if problems associated with acquiring and designing a new vehicle elevator similar to the current MV Tustumena could not be overcome.*

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<sup>7</sup> Personal communication, Trident Seafoods plant manager



*Section 5 presents information on a number of quantified and non-quantified benefits that favor Alternative 1 over Alternative 2 and the status quo. These include:*

- *Potential savings to the nation of a portion of the Essential Air Service subsidy – currently over \$500,000 annually.*
- *Likely reductions in MedEvac costs – currently costing the U.S. Coast Guard \$200 thousand to \$250 thousand annually. In addition, quick air response that could be achieved under Alternative 1 would result in faster treatment for Akutan residents needing emergency treatment.*
- *Increased efficiency/reduced waiting costs – Alternative 1 could reduce the current estimated cost of \$320 thousand to \$2.4 million per year.*
- *Increased air service competition – Alternative 1 would clearly increase potential for increased competition for air service in the region. Alternative 2 or the status quo would not have this effect.*
- *Airline travel safety in the region would be enhanced through Alternative 1 and would be negatively affected under Alternative 2 or the status quo since there would continue to be no alternative to Unalaska when conditions are bad there. Future marine emergency response could be enhanced under Alternative 1, compared with both Alternative 2 and the status quo.*
- *The air/sea transportation link available as part of Alternative 1 would enhance access to the federally designed and funded small boat harbor being constructed at the head of the Bay at Akutan. Neither Alternative 2 nor the status quo would provide this opportunity to leverage the benefit from a federally funded project.*
- *The enhanced air links possible for fresh seafood products to be shipped out of Akutan to markets in the U.S. and Pacific Rim nations would result in new economic activity and revenues to the region that are not possible under the status quo, and would not be materially enhanced via Alternative 2.*

*This final note is on the potential effect a different discount rate might have on the least cost analysis presented above. As discussed in the report, the FAA utilizes a discount rate of 7 percent, so this discount rate was used in the calculations of present value in the model. Agencies, and economists, may differ on their selection of appropriate discount rates. For example, the U.S. Corps of Engineers has a discount rate for their projects set each year by Congress. The current U.S. Corps of Engineers rate is 4 5/8 percent<sup>8</sup>. If this rate is substituted into the least cost model, the resulting net present values of the two alternatives are: Alternative 1 - \$87,395,333 and Alternative 2 - \$237,788,724.*

*A private corporation might look at the same problem differently, deciding that their discount rate should be based on the selection of a long-term interest rate (for example 5 percent) and an estimate for inflation (for example 2 percent) for a discount rate (net of inflation) of 3 percent. If*

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<sup>8</sup> Department of the Army. MEMORANDUM FOR PLANNING COMMUNITY OF PRACTICE, Economic Guidance Memorandum 09-01, Federal Interest Rates for Corps of Engineers Projects for Fiscal Year 2009, October 8, 2008.

*the discount rate in the least cost model is set at 3 percent, the resulting net present values of the two alternatives are: Alternative 1 - \$84,754,468 and Alternative 2 - \$247,509,086.*

*The important fact to note is that the present values of the 20-year costs for Alternative 1 and Alternative 2 change slightly with the different discount rates. However, the conclusion of the analysis remains valid in each instance – Alternative 1 is very clearly the least cost option over the 20-year period analyzed.*